INSTRUCTION MANUAL

EVER®
POWER SYSTEMS

IINSTRUCTION MANUAL
SUPERLINE

EVER Sp. z o.o.
ul. Grudzińskiego 30 · 62-020 Swarzędz · Poland
www.ever.eu · ups@ever.com.pl
tel. 0048 61 6500 400 · fax. 0048 61 6510 927

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INTRODUCTION

Thank you for purchasing the EVER SUPERLINE battery back-up (UPS). It is the latest series of state-of-the-art power supply devices designed to work with servers, computer networks, and data processing systems.
The SUPERLINE series EVER UPS was designed so as to meet all your expectations for protection against power loss.
This instruction manual contains information pertaining to the control of the device, as well as rules for safe operation. Please familiarise yourself with the contents of this manual prior to beginning your work with the EVER SUPERLINE battery back-up in order to ensure proper usage. The battery back-up was manufactured in Poland and its structure conforms to requirements of the **CE** symbol.

GENERAL INFORMATION

PURPOSE OF THE DEVICE

SUPERLINE series battery back-ups are ONLINE (VFI)-class devices designed for work with equipment powered by monophase ~230 mains.

	WARNING! SUPERLINE battery back-ups were not designed to work with life and/or health support medical equipment.

GENERAL FEATURES

SUPERLINE battery back-ups consist of the following functional units:

- Rectifier assembly with PFC system (power factor correction),
- Accumulator charger,
- Accumulator assembly,
- Inverter utilising the high-frequency IGBT technology,
- Automatic bypass system (static BYPASS),
- Manual (maintenance) bypass system (manual UPS/BYPASS switch),
- Microchip control system with measuring systems.

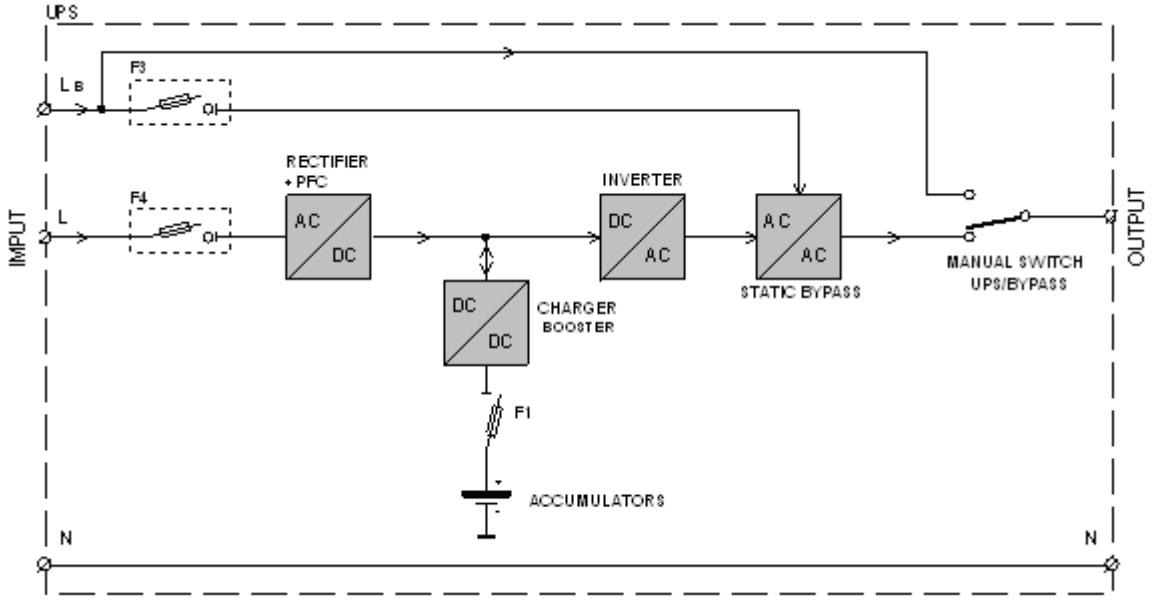
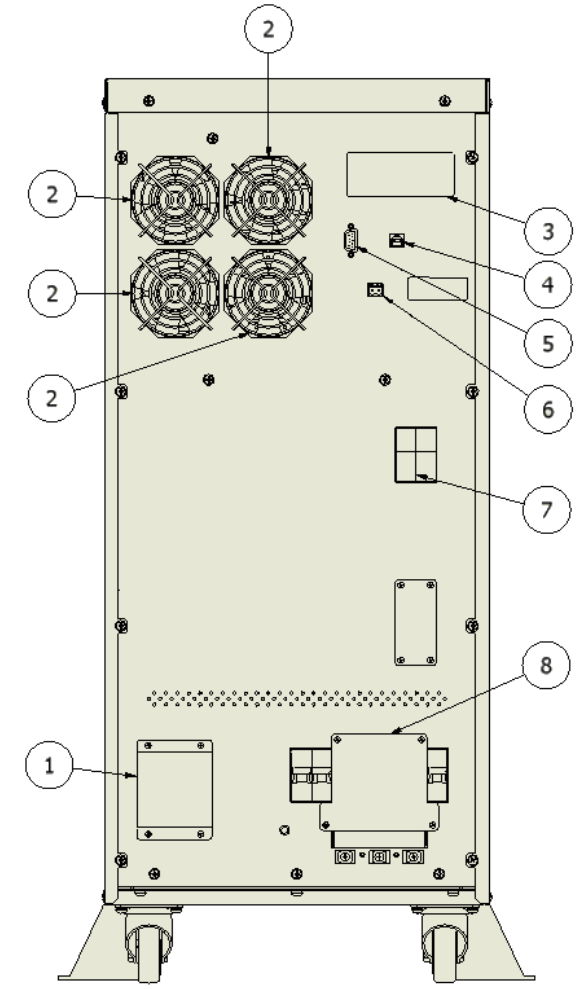


Figure 1: Simplified block diagram of the battery back-up

The input rectifier converts the alternating mains current to a direct current. The power factor correction system used in the rectifier enables significant elimination of noise transferred to the power system. The direct current bus is the main source of power of the inverter which produces sine alternating current that powers the receivers. An internal charger is responsible for charging the accumulator; it has a very low alternating charging current component, which significantly extends accumulator life. The microchip control system ensures precise and reliable operating of the whole power supply system.

The automatic bypass system increases the safety of the whole system. If the tolerance limits for the parameters of the inverter are exceeded, the mains current is provided to the load directly. This way the automatic bypass system constitutes an additional, passive safeguard of connected load. The additional function of manual engaging of the bypass enables complete powering of load from the mains. This way it is possible to supply power to the load from the mains without any involvement of the battery back-up's internal functional units.

ELEMENTS OF THE BATTERY BACK-UP



1) Cover of the BYPASS switch
2) Fans
3) Cover of the upgrade card slot
4) USB communication port
5) RS232 communication port
6) EPO connector
7) Internal accumulator fuse
8) Cover of connection terminals

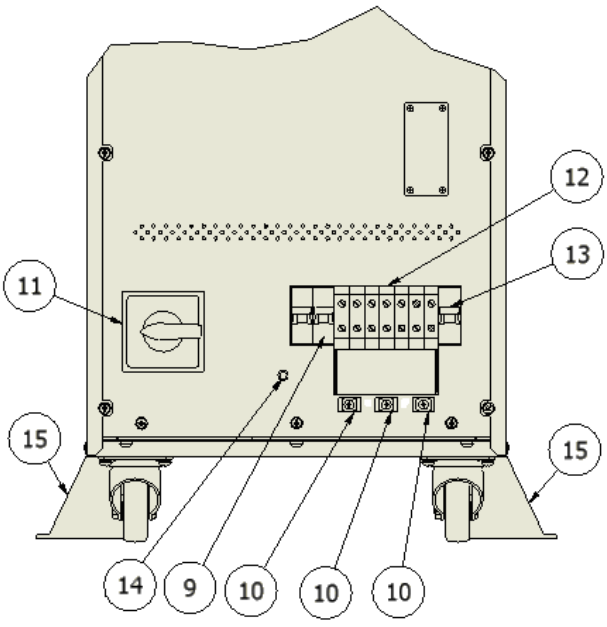


Figure 2: Rear panel

9) Input AC circuit breakers
10) Mechanical cable clamps
11) Maintenance BYPASS/UPS switch
12) Connection terminals
13) External battery module fuse
14) Earthing point
15) Installation grips

USER INTERFACE

The user interface consists of a 4-button keyboard, a LCD display and three LEDs located on the top cover of the battery back-up. It enables the monitoring of the back-up's operating parameters and modification thereof. Interface operation and the meaning of individual parameters are described below.

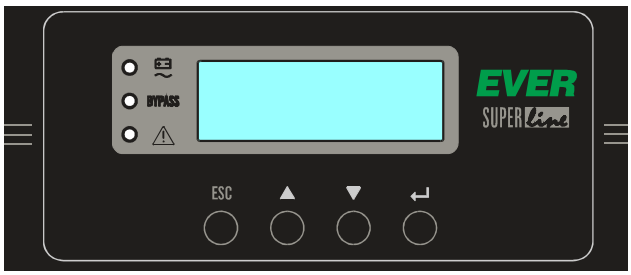


Figure 3: User interface

Table 1: Meaning of signalling LEDs

Graphic symbol	Designation	Description
	LED 1	**Signalling LED indicating the back-up's operation mode: NORMAL/BATTERY**
BYPASS	**LED 2**	**Signalling LED indicating the ON status of the BYPASS line**
	LED 3	**Signalling LED indicating the EMERGENCY mode**

Table 2: Optical signalling (LEDs)

LED 1		LED 2	LED 3	Operation mode
				UNKNOWN
		F		NORMAL
				ECO
		F		BYPASS
				BATTERY
		F		STANDBY
		F		SLEEP
		E	*	EMERGENCY
		F		INIT
		F		STOP
*	*			HYBRID

E – if EPO has been triggered the signalling is off, in all other cases the signalling of emergency mode is enabled.
F – mode dependent on configuration (no colour or red)
*** – blinking**

The battery back-up is also equipped with acoustic signalling for individual statuses of the device (see table).

Table 3: Acoustic signalling

Action	Acoustic signalling
NORMAL mode	None
HYBRID mode	Intermittent signal, rate depending on the charge level of accumulators (quick rate indicates low charge level)
BATTERY mode	
Forced switch into STANDBY mode	Intermittent signal – two signals in quick succession followed by a pause
EMERGENCY mode	Depending on the event
Overloads	Continuous signal
Shorting	Quick intermittent signal with a 50-50 distribution
Overheating	Slow intermittent signal with a 50-50 distribution
EPO triggered	Intermittent signal with a signal/silence distribution of 1s / 5s

All screens displayed on the LCD display are organised into a tree structure presented on the diagram below.

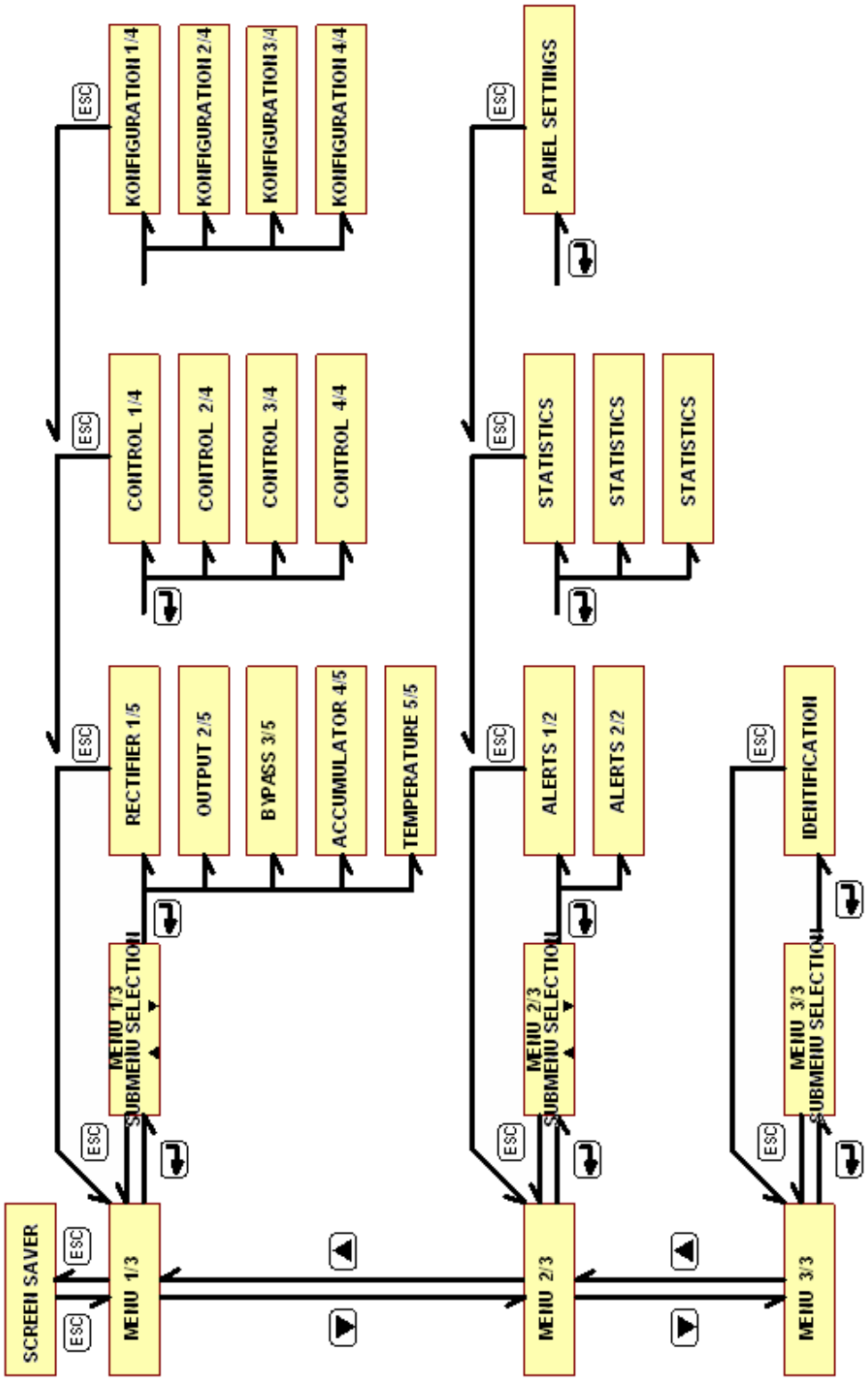


Figure 4: Screen structure

SCREENS

SCREENSAVER

Description: Information screen displayed as a screensaver when no button is pressed for 5 minutes. Simultaneously the LCD panel backlight is switched off.

Type: readout

Parameters:

Qak –charge level of accumulators
Uak –voltage of the accumulator unit
Owy –back-up load level
Tau –estimated time of autonomous operation of the back-up
TrybPracy –operating mode of the battery back-up
i:, a: –additional information as in the table below

Informative	
Abbr.	**Meaning**
L	Charging
PC	Overload
PG	Overheat
O	Waiting after STANDBY
AN	90 seconds of battery operation remaining
S	Maintenance
B	BYPASS

e.g. i:S+B

Alerts	
Abbr.	**Meaning**
ZW	Shorting
PC	Overload
PG	Overheat
AU	Accumulator damage
EPO	EPO
BW	Internal error

e.g. a:PC

Screen view:

Main menu

The main menu consists of three screens. To move between individual screens use the ▼▲ buttons. To confirm your selection press the ↵ button and in the selected menu again use the ▼▲ buttons to select subsequent submenu. The arrow to the left of a submenu item indicates the current selection. Confirm your selection with the ↵ button. Pressing **ESC** returns the user to the previous screen.

The POMIARY (MEASUREMENTS) submenu

The POMIARY (MEASUREMENTS) submenu consists of five items: PROSTOWNIK (RECTIFIER), WYJSCIE (OUTPUT), BYPASS, AKUMULATOR (ACCUMULATOR) and TEMPERATURA (TEMPERATURE).

PROSTOWNIK 1/5

Description: Input parameters of the battery back-up
Type: readout
Parameters:

- **U** –Input voltage of the rectifier
- **I** –Input current of the rectifier
- **f** –Input frequency of the rectifier
- **PF** –Input power factor of the rectifier
- **P** –Input active power of the rectifier
- **S** –Input apparent power of the rectifier

Screen view:

WYJŚCIE 2/5

Description: Output parameters of the battery back-up
Type: readout
Parameters:

- **U** –Output voltage of the battery back-up
- **I** –Output current of the battery back-up
- **f** –Output frequency
- **PF** –Output power factor
- **P** –Output active power
- **S** –Output apparent power

Screen view:

BYPASS 3/5

Description: Input parameters of the BYPASS line
Type: readout
Parameters:

U –Voltage of the BYPASS line
I –Current of the BYPASS line
f –Frequency of the BYPASS line
PF –Input power factor of the BYPASS line
P –Input active power of the BYPASS line
S –Input apparent power on the BYPASS line

Screen view:

AKUMULATOR 4/5

Description: Accumulator parameters
Type: readout
Parameters:

U –voltage of the accumulator unit
I –Absolute value of accumulator current
Q –Level of accumulator charge (calculated for current load)
Tau –estimated time of autonomous operation
StanAku. –Accumulator wear indicator; the value is updated each time the accumulators are completely discharged if the TestAku parameter is enabled; 100% (default value) indicates full accumulator efficiency.

Screen view:

TEMPERATURA 5/5

Description: Temperature parameters
Temperature of internal elements of the battery back-up.
Type: readout
Parameters:

T0 –Temperature of internal elements of the battery back-up
T1 –Temperature of internal elements of the battery back-up

Screen view:

The KONTROLA (CONTROL) submenu

The KONTROLA (CONTROL) submenu is divided into four groups. Menu navigation is the same as described above. Users may change the battery back-up's configuration but it must be noted that changes to individual items are possible only once certain conditions are met. See the table above.

Table 4: Table of changes to configuration flags

Operation mode / Control flag	UNKNOWN	INIT	NORMALN	HYBRID	BATTERY	ECO	STOP	SLEEP	STANDBY	BYPASS	{0><}100{>EMERGENCY<0}
AwaryjneWylaczenie (emergency stop)	X	•	•	•	•	•	•	•	•	•	X
UPS	X	X	○	○	○	○	•	■	○	○	X
Buzzer	X	□	□	□	□	□	□	□	□	□	□
Czas.Wyl.EPO (EPO switch-off time)	X	□	□	□	□	□	□	□	□	□	□
UPS->STB/STB->UPS	X	X	X	X	•	X	X	X	X	X	X
ECO	X	X	X	X	X	X	□	□	X	X	X
UPS->Bypass/Bypass-UPS	X	X	•	•	•	•	X	X	X	○	X
KasujAwarie (reset malfunction)	X	X	X	X	X	X	X	X	X	X	•
TestAku (accumulator test)	X	□	□	□	□	□	□	□	□	□	□
KontrolaBypass (bypass control)	X	□	X	X	X	X	□	□	X	X	X

Select a screen with the ▲▼ buttons and confirm with ↵. The same applies to parameters: selection is made with the ▲▼ buttons and confirmation with the ↵ button. The KONTROLA submenu features two types of parameters. Some of the parameters require additional confirmation of changes (by pressing ↵) or enable cancelling the changes (by pressing **ESC**), e.g. **AwaryjneWylaczenie**. Changing other parameters consists in setting the desired flag by selecting Wl (On) or Wyl (Off) with the ▲▼ buttons and confirming the selection by pressing ↵. Confirmation displays the next screen in the tree structure.
Confirming a parameter setting saves it in the battery back-up's memory. The saving process is indicated by the following messages:

-- Trwa zapis -- - saving in progress
-- Zapis OK -- - saving completed successfully
-- Blad zapisu -- - saving failed, try again
-- Zla wartość -- - value outside tolerance range

Messages are displayed for a short time in the bottom line of the display and then the menu returns one level up. This rule applies to all modifiable parameters. Sample saving screens are presented below.

KONTROLA 1/4

Description: Settings of control flags of the battery back-up.
Type: Readout/saving
Parameters:

AwaryjneWylaczenie –Forced switching of the battery back-up to the EPO mode from the user interface

UPS –Switching the battery back-up on and off

Buzzer –Switching on and off the signalling of the charge level of accumulators in the battery and hybrid operating modes

Screen view:

KONTROLA 2/4

Description: Settings of control flags of the battery back-up.
Type: Readout/saving
Parameters:

Czas.Wyl.EPO –Timed deactivation (1 min) of the EPO connector.

UPS->STB –Manually forced STANDBY mode; Switching after certain time has elapsed (KONFIGURACJA 2/4; Opoz.STB)

ECO –Switching the battery back-up to the ECO operating mode.

Screen view:

KONTROLA 3/4

Description: Settings of control flags of the battery back-up.
Type: Readout/saving
Parameters:

UPS->Bypass –Manually forced BYPASS operating mode.
Bypass->UPS –Manually forced normal operating mode
KasujAwarie –Resetting EMERGENCY mode
TestAku –Enables updating the accumulator condition indicator each time the accumulators are fully discharged.

Screen view:

KONTROLA 4/4

Description: Settings of control flags of the battery back-up.
Type: Readout/saving
Parameters:

KontrolaBypass –Switching the control of the BYPASS line on and off; This parameter is automatically switched on during the configuration of the battery back-up to work in ECO mode; control of the BYPASS line is available only when the back-up is switched on.

Screen view:

The KONFIGURACJA (CONFIGURATION) submenu

The KONFIGURACJA (CONFIGURATION) submenu is divided into four groups. Menu navigation is the same as described above. Users may change the values of parameters of the battery back-up as long as the keyboard is not locked.
Select a screen with the ▲▼ buttons and confirm with ↵. The same applies to parameters: selection is made with the ▲▼ buttons and confirmation with the ↵ button. The KONFIGURACJA submenu features parameters with numeric values. To change them, increase or decrease the value with the ▲▼ buttons and confirm by pressing ↵. Confirmation displays the next level in the structure. To cancel changing the parameter value press **ESC**.

KONFIGURACJA 1/4

Description: Parameters of the battery back-up
Type: Readout/saving

Parameters:

UWyjsciowe –Output voltage of the battery back-up; changes of output voltage by modifying the parameter while in inverter operating modes take place only when the battery back-up's operating mode is changed.

UGornyProg –Upper threshold value of correct voltage for the BYPASS line

UDolnyProg –Lower threshold value of correct voltage for the BYPASS line

Screen view:

KONFIGURACJA 2/4

Description: Parameters of the battery back-up
Type: Readout/saving

Parameters:

fDolnyProg –Lower threshold value of correct mains frequency

fGornyProg –Upper threshold value of correct mains frequency

Opoz.STB –Delay time when the user forces the battery back-up to switch to STANDBY mode.

Screen view:

KONFIGURACJA 3/4

Description: Parameters of the battery back-up
Type: Readout/saving
Parameters:

Poj. z STB. –Minimum charge level the accumulators must reach for the battery back-up to start after a complete discharge.

ProgKas.Prz. –Load level at which the battery back-up stops signalling an overload.

Screen view:

KONFIGURACJA 4/4

Description: Parameters of the battery back-up
Type: Readout/saving
Parameters:

Poj.Aku. –Capacity of used accumulators

LiczbaSekcji –Number of accumulator sections (sum of internal and external accumulator sections)

Pr.Ladowania –Total charging current of accumulators

Screen view:

The ALARMY (ALERTS) submenu

The ALARMY submenu consists of two screens. Menu navigation is the same as described above. Select a screen with the ▲▼ buttons and confirm with ↵. Alert screens inform the user about the type of alert that caused the battery back-up to switch to the EMERGENCY mode.

ALARMY 1/2

Description: Alerts of the battery back-up.
Type: readout
Parameters:

Zwarcie –Shorting at the battery back-up's output when in inverter operating mode.
Przeciążenie –Excessive load connected to the back-up's output.
Przegrzanie –Excessive temperature of internal elements of the battery back-up.

Screen view:

ALARMY 2/2

Description: Alerts of the battery back-up.
Type: readout
Parameters:

AkuUszkodzony –Accumulator malfunction
EPO –Forced switch of the battery back-up to the EMERGENCY mode (EPO)
BladWewnetrzny –Internal device error, contact technical support.

Screen view:

The STATYSTYKA (STATISTICS) submenu

The STATYSTYKA submenu consists of three screens. Menu navigation is the same as described above. Select a screen with the ▲▼ buttons and confirm with ↵. Individual screens contain information pertaining to the history of the back-up's operation.

STATYSTYKA 1/3

Description: Statistical data.
Type: readout
Parameters:

Niepraw.Siec –Number of events connected with incorrect mains parameters.
Przeciazen –Number of overloads.
Zwarc –Number of output shortings in inverter operating modes.

Screen view:

STATYSTYKA 2/3

Description: Statistical data.
Type: readout
Parameters:

Rozladowan –Number of complete discharges of the back-up's accumulators.
Przegrzan –Number of overheats.
Przeciąż –Operation time under overload.

Screen view:

STATYSTYKA 3/3

Description: Statistical data.
Type: readout
Parameters:

Normalna –Operation time in NORMAL mode.
Rezerwowa –Operation time in BATTERY mode.
Bypass –Operation time in BYPASS mode.

Screen view:

The USTAWIENIA PANELU (PANEL SETTINGS) submenu

The USTAWIENIA PANELU submenu consists of a single screen. Menu navigation is the same as described above. Users may change the values of parameters of the battery back-up as long as the keyboard is not locked.
Select the screen with ↵, parameter selection is done with the ▲▼ buttons and confirmation with the ↵ button. The USTAWIENIA PANELU submenu features parameters with numeric values. To change them, increase or decrease the value with the ▲▼ buttons and confirm by pressing ↵. Confirmation displays the next screen in the tree structure. To cancel changes of the parameter value press ESC.

USTAWIENIA PANELU

Description: User interface settings.
Type: Readout/saving
Parameters:

Kontrast –Level of contrast of the LCD display.
Podswietlanie –Display backlight intensity.
Blok.Kl. –Keyboard lock indicator; changes available only in the control software; keyboard lock prevents any modifications of parameters.

Screen view:

The IDENTYFIKACJA (IDENTIFICATION) submenu

The IDENTYFIKACJA submenu consists of a single screen containing the information about the device. To leave this screen press **ESC**.

IDENTYFIKACJA

Description: Device information.
Type: Readout/saving
Parameters:

- **S** –Nominal apparent output power of the battery back-up.
- **P** –Nominal active output power of the battery back-up.
- **VH** –Hardware version
- **VF** –Firmware version
- **VP** –Communication protocol version
- **VFP** –LCD panel firmware version

Screen view:

SAFETY AND HEALTH INSTRUCTIONS

HANDLING

- exercise utmost caution when handling the device;
- due to the weight of the device, it is equipped with rubber castors;
- storage and operation of the device should take place in conditions conforming to its specification.

ELECTRIC SAFETY

- Never work alone in conditions that may be hazardous to health and/or life;
- even a momentary shorting of a strong current may lead to severe burns;
- before connecting the device to the mains inspect the condition of power leads, plugs and sockets, as well as the condition of the device itself;
- in order to avoid the risk of electric shock when connecting and disconnecting communication cables and touching two surfaces with differing electric potential, if possible use only one hand;
- the device must be plugged in to a three–lead installation (1P+N+PE) – failure to follow this recommendation may result in electric shock;

Users are forbidden to carry out any repairs, as they may lead to injury or death. Any repairs and replacement of batteries should be conducted only by a qualified representative of the technical support.

	WARNING! The battery back-up is disconnected from the mains only when the power cord is removed from its socket.

	WARNING! Since the device is equipped with internal power source (batteries) the output may provide hazardous voltage even though the device itself is not connected to the mains.

	WARNING! SUPERLINE battery back-ups were not designed to work with life support medical equipment.

INSTALLATION

	WARNING! Before installing the battery back-up you must obligatorily familiarise yourself with the safety and health measures provided in the previous chapter.

UNPACKING

Please inspect the battery back-up upon receipt. Although the product is delivered in a packaging it could have sustained damage from inappropriate conditions during transport. Should you find any damages, please inform the carrier or vendor immediately.

	WARNING! The device may be delivered with its accumulators connected.

The device is placed on a wooden pallet that facilitates its transportation with a forklift.
In order to unpack the device you need to cut the belts fastening it to the pallet. Next, remove the cardboard packaging by sliding it upwards. Remove protective elements.

	WARNING! While on the pallet, the device stands on polyethylene foam which impacts its stability. Upsetting the device may create hazard to health or life.

If the device is delivered with accumulators, please bear in mind its significant weight – see the technical parameters table. To remove the device from the pallet use belts and a lift.
If the device is delivered without accumulators installed, it should be removed from the pallet by at least 3 persons.

Verify the contents of the packaging. The packaging should contain:

- the battery back-up,
- instruction manual and PowerSoft Personal installation CD-ROM,
- RS232 communication cable to connect the back-up to a computer,
- USB communication cable to connect the back-up to a computer,
- A set of 10x38 fuses (2 pcs)
- warranty card
- installation grips (2 pcs).

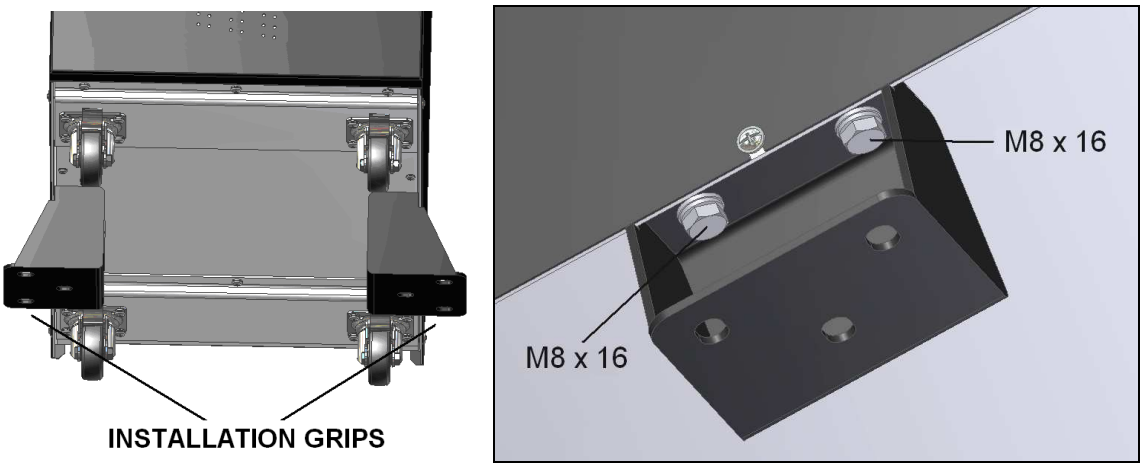
INSTALLATION OF THE BATTERY BACK-UP

When choosing the installation spot you must take the device's weight into account. The back-up should only be used in rooms where dustiness, temperature and moisture levels conform to the device's specification. In order to ensure correct operation of the back-up, appropriate cooling conditions for the device must be provided. For this reason the ventilation openings on the back-up's case must be uncovered and the distance between the back-up and other objects should not be lower than 30 cm.

⚠	**WARNING! The device must not be installed close to flammable materials!**

Before positioning the battery back-up two additional installation grips need to be mounted in order to ensure stability of the device and enable fixing it to the floor. To this end please remove the 4 M8 screws located in the central section of the device's bottom side. Gently tilt the battery back-up and place the grips. Next, screw the grips down to the UPS with the screws previously removed.

Figure 10: Installation grips



Detailed information may be found in a separate document containing installation guidelines, delivered with the device.

THE BATTERY MODULE

Battery back-ups from the SUPERLINE series offer the option of connecting additional battery modules. Modules are connected to connection clamps located on the rear panel of the battery back-up. Connecting battery modules extends the time of battery operation mode. Battery modules are installed in a series and are safeguarded with additional cut-offs located on their rear panels.

⚠	**WARNING! If the fuses burn out, they should be replaced in accordance with the specification.**

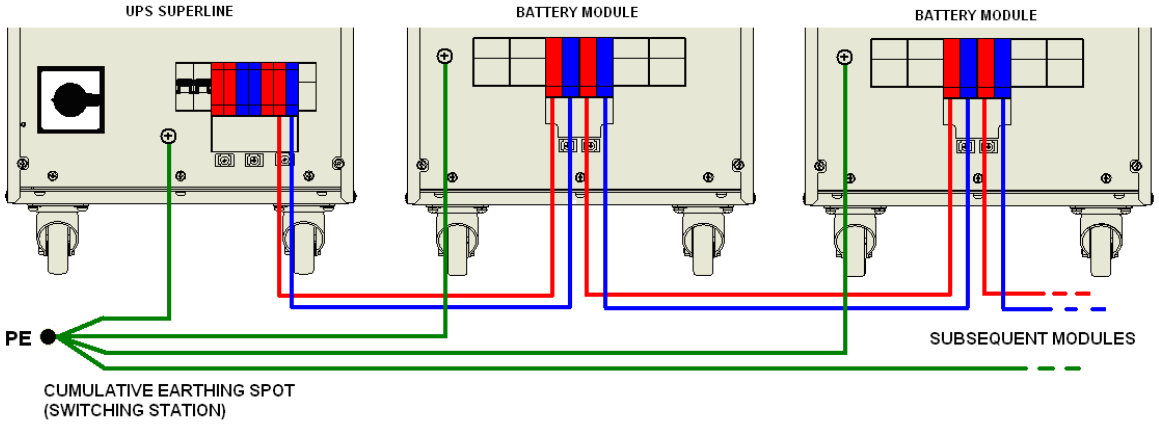


Figure 11: Connecting battery modules

Connecting the modules

⚠	**WARNING! With the safeguards active there is hazardous, and possibly lethal, voltage on the connection clamps. Disable all safeguards before commencing any installation works!**

1. Turn off the battery back-up via the user interface (KONTROLA 1/4; UPS).
2. Switch the F3 and F4 circuit breakers to OFF.
3. Disable all accumulator safeguards (F1, F2 and F5) by opening the fuse holders. There is no fixed order to do this. Remove the fuse-elements.
4. Disable all accumulator safeguards for the already connected battery modules and those being connected by opening the fuse holders and removing the fuse-elements.
5. Disable the safeguards of the basic and BYPASS lines on the switchboard of the room/building.
6. Remove the protective stoppers from connectors (rear panels of the battery back-up and modules).
7. Connect the module to the battery back-up, ensuring correct terminal polarity. Modules are connected in a series: UPS to first module, then first module to second module, second module to third module and so on. Protective earthing cables from each device are connected to a common point in the room's/building's switching station.

8. After verifying the correctness of connections secure the terminals by replacing the stoppers. Secure the cables against accidental pulling out by fastening them with bands to special grips located below the terminals.
9. Enable the safeguards in the room's/building's switching station.
10. Replace the fuse-elements in the respective holders.
11. Close all fuse holders of all connected battery modules.
12. Close the F1 holder on the battery back-up.
13. Wait at least 10 seconds.
14. Close the F2 holder on the battery back–up – accumulators are now connected.
15. Switch the F3 and F4 circuit breakers to ON.
16. Set up the accumulator parameters of the battery back-up (KONFIGURACJA 4/4).
17. Launch the battery back-up via the user interface (KONTROLA 1/4; UPS).

The displayed data associated with the number of connected accumulators will be automatically updated once the accumulators are topped up. Until that time the indications may differ from the actual state.

Disconnecting the modules

1. Shut down the battery back-up via the user interface (KONTROLA 1/4; UPS).
2. Switch the F3 and F4 circuit breakers on the battery back-up to OFF.
3. Disable the safeguards of the basic and BYPASS lines in the room's/building's switching station.
4. Disable the F1, F2 and F5 safeguards on the battery back-up and the F1 and F2 safeguards on all battery modules by opening the fuse holders and removing the fuse-elements.
5. Remove the connector stoppers.
6. Disconnect the modules. The connecting cables must be completely disconnected.
7. Secure the connectors by replacing the protective stoppers.
8. Enable the safeguards in the room's/building's switching station.
9. Replace the fuse-elements in the respective holders.
10. Close the fuse holders of all connected battery modules (if any).
11. Close the F1 holder on the battery back-up.
12. Wait at least 10 seconds.
13. Close the F2 holder on the battery back–up – accumulators are now connected.
14. Switch the F3 and F4 circuit breakers to ON.
15. Set up the accumulator parameters of the battery back-up (KONFIGURACJA 4/4).

	WARNING! Never leave leads unconnected! The current flowing in them may be hazardous to health and possibly lethal!

CONNECTING THE BATTERY BACK-UP

Connection terminals

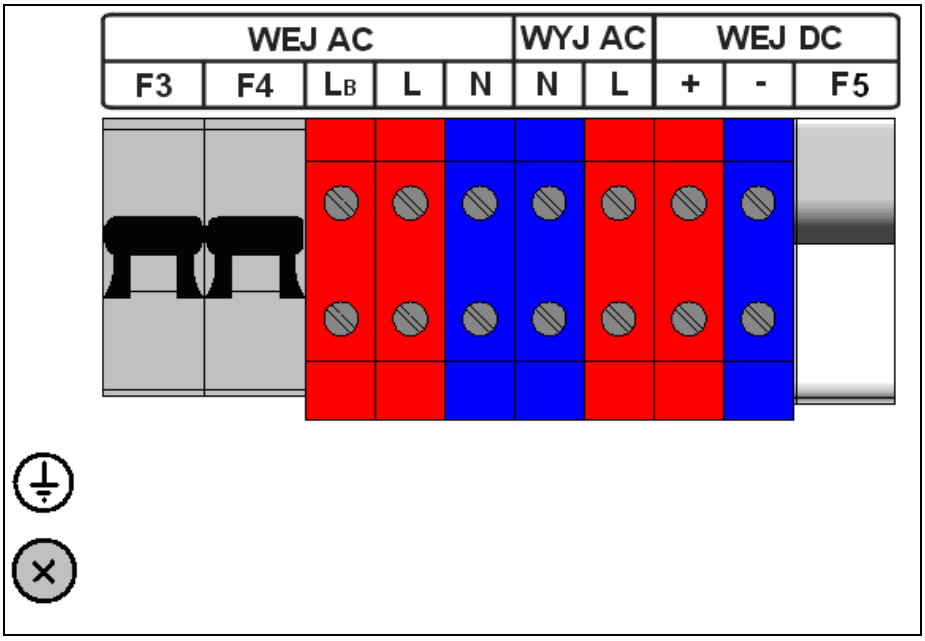


Figure 12: Connection terminals with safeguards

F3 –BYPASS line safeguard
F4 –Basic line safeguard

WEJ AC –Input terminals
L_B –Live BYPASS line
L –Live basic line
N –Neutral basic line
WYJ AC –Output terminals
L –Output live line
N –Output neutral line

WEJ DC –Input terminals of an external battery module
\+ – positive pole
\- –negative pole

F5 –Safeguards of the terminal of an external battery module (fuse-element)

– point of protective earthing. Connection is made by screwing down the cable with an O-ring end with an M6 screw.

There are no connection cables ending with plugs. Therefore, all connections are made by screwing down the endings of individual cables to connectors. Next, the cables have to be secured against being pulled out by fastening them with bands to special grips located below the connectors.
Make sure the cable diameters comply with the installation guidelines. Cable endings should be secured with metal sleeves.

The installation arrangement must enable disconnecting the section where the battery back-up is connected from the mains, e.g. by turning overcurrent switches.

	WARNING! Connecting of the battery back-up to the mains should be performed only by qualified and authorised personnel.

	WARNING! The battery back-up is disconnected from the mains only when the power cord is removed from its socket.

It is recommended to use the safety circuits of the building as one of the protection measures. Protection parameters of the buildings' installations should be adjusted according to the type and size of load connected to the installation. Differing characteristics of protections of installations in the building and the battery back-up may in extreme cases lead to quicker responses of the former.

	WARNING! The user is obligated to place the following information on all mains disconnecting switches installed far from the installation spot of the battery back-up:
	“DO THE FOLLOWING BEFORE STARTING WORK ON THIS CIRCUIT: **- DISCONNECT THE BATTERY BACK-UP SYSTEM (UPS)** **- MAKE SURE THERE IS NO RISK OF REVERSE POWER SUPPLY BETWEEN ANY OF THE CLAMPS (BY ENABLING THE PE CLAMP)”**

Electric system

The electric system should comply with the installation guidelines for this type of battery back-ups. The guidelines constitute a separate document delivered with the device.

STARTING THE BATTERY BACK-UP

A correctly connected battery back-up may be started as follows:

1) Verify whether the F3 and F4 circuit breakers are set to OFF; if not, set them to OFF.
2) Open the F1 and F2 fuse holders.
3) Insert the correct fuse-element into the F1 fuse holder (do not close the holder).
4) Insert the correct fuse-element into the F5 fuse holder and close it to close the circuit.
5) Insert the correct fuse element into the fuse holder on the battery module and close the circuit by closing the holder.
6) Close the F1 holder.
7) Wait at least 10 seconds.
8) Close the F2 holder – accumulators are now connected.
9) Switch the F3 and F4 circuit breakers to ON.
10) Configure the battery back-up (when starting for the first time, if changes are required).
11) Turn on the battery back-up via the user interface (KONTROLA 1/4; UPS).

Items 4 and 5 are to be performed only when additional battery modules are being connected.
Afterwards the battery back-up begins normal operation in accordance with the description below.

	WARNING! Back-up's batteries reach their full capacity after approximately a month of NORMAL operating mode.

POWERING OFF AND DISCONNECTING THE BATTERY BACK-UP

In order to disconnect the battery back-up completely, perform the below tasks in the given order:

1) Turn off the battery back–up via the user interface (KONTROLA 1/4; UPS) – logical power off;
2) Disable the safeguards of the basic and BYPASS lines in the room's/building's switching station while the back-up is uninstalled.
3) Set the F3 and F4 safeguards of the battery back-up to OFF.
4) Disable safeguards F1, F2 and F5 by opening them and removing the fuse-elements.
5) If additional battery modules are connected to the back-up, repeat tasks from item 4 for safeguards F1 and F2 on the modules.
6) Remove the connector stoppers on the battery back-up and any modules.
7) Disconnect the connecting cables from the switching station, battery back-up and modules (also between individual modules). Never leave any cables unconnected.
8) Replace the protective stoppers.
9) Close the F1, F2 and F5 fuse holders on the battery back-up and the F1 and F2 holders on the modules if the fuse-elements have been removed. Fuse-elements should not be stored inside the battery back-up when it is not installed.

OPERATING MODES OF THE BATTERY BACK-UP

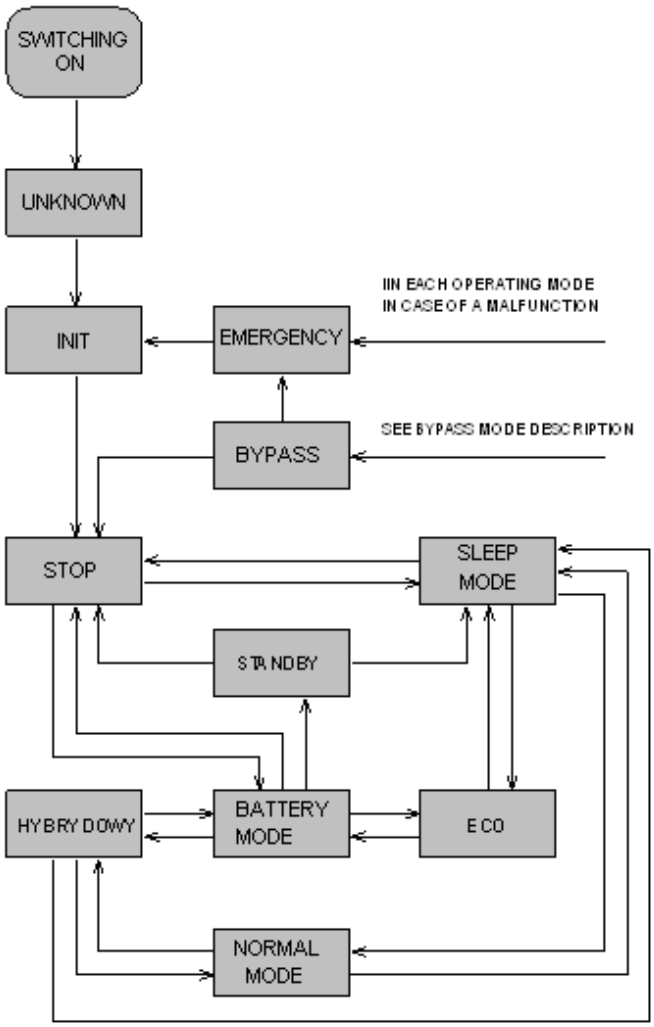


Figure 4: Diagram of operating modes

The NIEZNANY (UNKNOWN) mode

Intermediate state during the switching on of the battery back-up after the back-up receives power.

The INIT mode (INITIALISATION)

Intermediate state occurring after the hardware platform is initialised with start values or when returning from EMERGENCY mode.

The NORMAL mode (MAINS OPERATION)

For the battery back-up to operate in NORMAL mode it must be switched on (from the user interface). Additionally, the basic mains input line must meet the criteria of correct mains parameters (voltage and frequency). Only then will the battery back-up transfer the power to the output from the above-mentioned mains through the inverter system. In this mode accumulators are being charged.

The HYBRID (MIXED) mode

In the HYBRID mode the battery back-up provides power to the output from the basic mains line while supplying the missing power from accumulators.

The BATTERY mode

If the basic mains input line or the BYPASS line in ECO mode fails to meet the criteria of correct mains parameters, the battery back-up switches to the BATTERY mode (battery operation). In the BATTERY mode the inverter provides power to the accumulator output.

The ECO (ECONOMICAL) mode

Mode forced by the user by setting up the control flag (KONTROLA 2/4; ECO). With the ECO control flag active the NORMAL and HYBRID modes are unavailable. For the battery back-up to work in ECO mode the criteria of correct mains parameters must be met for the basic and BYPASS lines. Incorrect parameters of either line will cause the battery back-up to switch to BATTERY mode. With the ECO flag set the battery back-up behaves similarly to an OFF-LINE type UPS. In ECO mode the output is supplied with power from the BYPASS line or from the accumulators (BATTERY mode). Internal power units are not involved in energy processing, which increases the battery back-up's efficiency.

The STOP mode

The battery back-up is switched off (from the user interface); no voltage meeting the criteria of correct parameters is available on the basic line. It is also the intermediate state when the battery back-up switches from BYPASS and EMERGENCY modes.

The CZUWANIE (SLEEP) mode

The battery back-up is switched off (from the user interface); the basic line meets the criteria of correct mains parameters. Battery preservation mechanisms are active. When the battery back-up switches from STANDBY to SLEEP mode the accumulator charge level is checked. If the charge level is below the set threshold (KONFIGURACJA 3/4; Poj. z STB.), the battery back-up remains in this mode until the required minimum charge is reached.

The STANDBY mode

The battery back-up may only switch to STANDBY mode from the BATTERY mode when the accumulators are completely discharged or when forced by the user (KONTROLA 2/4; UPS->STB). The mode switching is performed after the set time has elapsed (KONFIGURACJA 2/4; Opoz.STB).
The battery back-up remains in this mode if the basic line voltage fails to meet the criteria of correct mains parameters while the device is switched on.
Turning the battery back-up off causes it to switch to the STOP or SLEEP mode.

The BYPASS mode

The BYPASS mode is triggered when the battery back-up is overloaded or when forced by the user (KONTROLA 3/4; UPS->BYPASS).
In such a case the output power is provided by the BYPASS line.

The device will return to normal operation when the load level drops below the set threshold (KONFIGURACJA 3/4; ProgKas.Prz.).

The EMERGENCY mode

The EMERGENCY mode may be triggered by an overload, overheating or turning on EPO. The battery back-up remains switched on but the processing blocks are inactive. In this mode the BYPASS line is engaged. The only exception is the battery back-up's mode in which EPO is active when the BYPASS line is off.

OTHER FUNCTIONAL ELEMENTS

Safeguards

Against overloads

Overload (<105%) is signalled by a continuous sound and an appropriate message on the display.
If the degree of overload remains at the level of 105÷120%, the battery back-up continues to work in its current mode for another minute and then switches to the BYPASS mode. If the overload exceeds 120% of the battery back-up's nominal power, the BYPASS mode is engaged immediately. The UPS remains in the BYPASS mode as long as the load level exceeds the set threshold (KONFIGURACJA 3/4; ProgKas.Prz.). When the load level returns below the threshold the battery back-up will attempt five times to resume operation. Failure causes the UPS to switch to the EMERGENCY mode. In the BATTERY mode an overload will cause the battery back-up to switch to the EMERGENCY mode without any additional attempts to resume operation.

Against shorting

In the inverter operation modes, i.e. NORMAL, BATTERY and HYBRID, the electronic shorting safeguard reduces the short-circuit current to a safe level. Shorting is signalled by an appropriate message and a quick intermittent acoustic signal. If the shorting lasts longer than approx. 100 ms the battery back-up switches to the EMERGENCY mode.
For operation modes utilising the BYPASS line circuit breakers F3 and F4 are used.

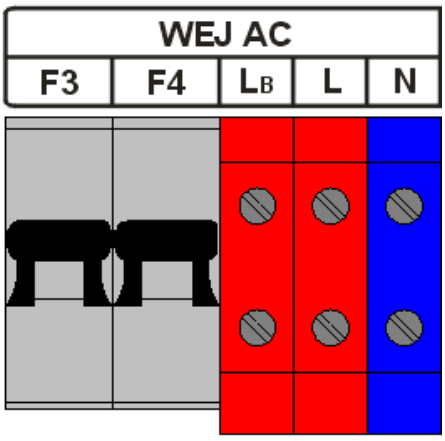


Figure 5: Input connectors with circuit breakers

Against overvoltage

The battery back-up is equipped with anti-overvoltage safeguard at the input which protects the circuits of receivers and the internal circuits of the UPS against overvoltage caused by atmospheric phenomena and power grid disturbances.

Accumulator safeguards

Accumulators are protected by fuses. The terminal of the external battery module and the internal accumulators are safeguarded separately. These safeguards also function as disconnecting switches used e.g. during installation. Fuse type is presented in the technical parameters table.

⚠	**WARNING! Do not use fuses other than provided for in the device's specification!**

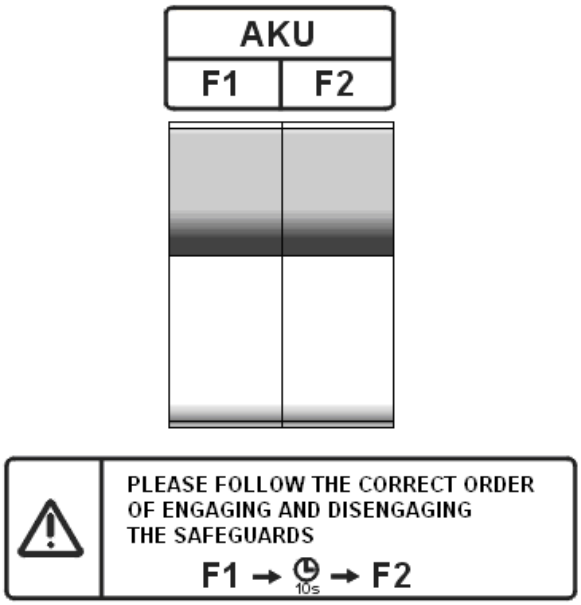


Figure 6: Safeguards of internal accumulators

Users must follow the instruction written in the label below the fuses which mentions the necessity of maintaining correct order of engaging the fuses. Connect F1 first, wait 10 seconds and then connect F2. Failure to follow this instruction may damage the battery back-up.

Terminal of the external battery module is safeguarded by the F5 fuse located to the right of the clamps. With the holder open it disconnects the poles.

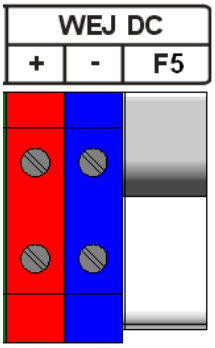


Figure 7: Connections of the external battery module with the fuse

Thermal safeguards

The battery back-up is equipped with a thermal safeguard protecting it against overheating. This safeguard operates on two levels.
If the internal temperature reaches critical, it switches on an acoustic signal and displays the appropriate message. The UPS continues to operate in its current mode. If the temperature keeps rising and critical temperature is reached, an alert is displayed and the UPS switches to EMERGENCY mode.

EPO

EPO (Emergency Power Off) is a mechanism that enables interrupting the power supply to receivers connected to the battery back-up's output in emergency situations (such as fires). The UPS switches to the EMERGENCY mode.
There are two ways to trigger this mechanism:
- By opening the contacts of the external EPO connector (release),
- By forcing the mode from the user interface (KONTROLA 1/4; AwaryjneWylaczenie).

Output voltage returns after the user resets the malfunction flag (KONTROLA 3/4; KasujAwarie) and moves the release to its inactive setting (default state of the release) in the case of external triggering.
It is possible to temporarily lock the EPO function out while the EPO release is installed. The technician may then remove the EPO connector without fear of cutting the power supply to receivers. This operation must be completed within 1 minute from the moment of setting the control flag (KONTROLA 2/4; Czas.Wyl.EPO); afterwards the lock is automatically removed.
Voltage on the EPO contacts is safe and it is separated from all the other systems of the UPS.

	WARNING! The EPO circuit must be self-contained and must not be connected to any other installations.

Manual BYPASS

The battery back-up is equipped with a manual switch for the BYPASS line, which enables direct switching of the BYPASS line to the output clamps of the UPS, circumventing the back-up units.

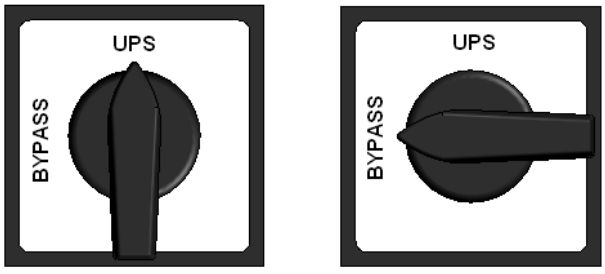


Figure 8: Manual BYPASS line switch

Switch in the UPS position – normal UPS operation
Switch in the BYPASS position – BYPASS line switched to output clamps. Switching may be performed at any moment.

COMMUNICATION BETWEEN THE UPS AND A COMPUTER

COMMUNICATION VIA RS232 OR USB

Users have the option to change the battery back-up's parameters not only via the user interface (panel) but also via dedicated software.
SUPERLINE series battery back-ups come with enhanced control features. The UPS is delivered with built-in RS232 and USB communication ports and the PowerSoft Personal software package. In order to ensure correct cooperation the battery back-up must be connected to the computer with the provided cable. After the cable is connected, turn on the back-up, start the computer and install the software in accordance with the instruction manual or the instructions provided by the installation software (only Microsoft Windows).

WARNING! Only one type of connection may be used at any given time.

RS232 and USB ports are separated galvanically from all the other units of the battery back-up.

EVER SNMP/HTTP NETWORK CONTROL CARD

The EVER control card is an optional component that may be installed by the user. It integrates the battery back-up with an Ethernet network. The network control card is located in a special slot located on the rear panel of the battery back-up. With the adapter installed the user can control the battery back-up from any computer connected to the network. This solution is most often used in cases of central power supply or when the power supply system needs to be controlled remotely.
The network control card has the following services implemented:

- SNMP agent – enables control of the power supply system via a SNMP manager software;
- HTTP server – enables inspection and modification of the battery back-up's parameters via an Internet browser;

More information on the network card adapter can be found in its instruction manual.

WARNING! Installing the SNMP card renders the communication via RS232 and USB, as well as control via PowerSoft Personal, impossible.

Installing the control card

1) Turn off the battery back-up via the user interface (KONTROLA 1/4; UPS).
2) Set the F3 and F4 safeguards to OFF.
3) Disable the F1, F2 and F5 safeguards by opening the fuse holders. Safeguards can be disabled in any order.
4) Wait approx. 30 seconds for the internal capacities to discharge.
5) Remove the screws holding the cover of the card slot.
6) Connect the cable located in the opening to the card.
7) Slide the card into the opening.
8) Replace the screws, fixing the card to the rear panel.
9) Enable the F1 safeguard by closing the holder.
10) Wait at least 10 seconds.
11) Enable the F2 safeguard by closing the holder.
12) Enable the F5 safeguard by closing the holder.
13) Switch the F3 and F4 safeguards to ON.
14) Launch the battery back-up via the user interface (KONTROLA 1/4; UPS).

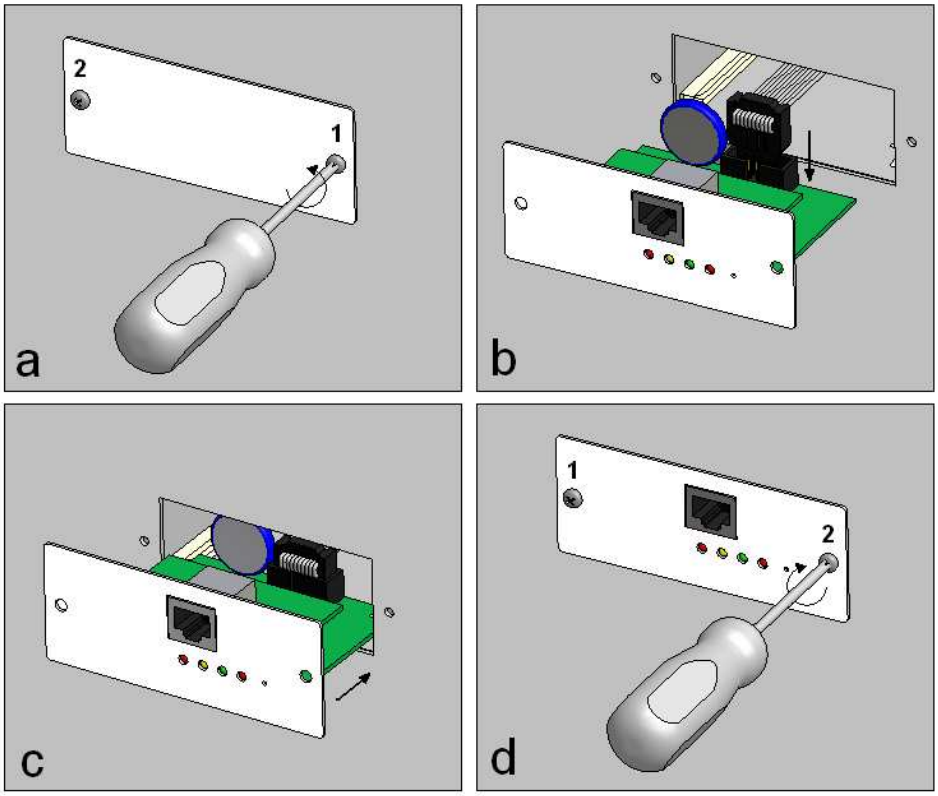


Figure 9: Card installation

INSTALLATION AND CONFIGURATION OF THE POWERSOFT PERSONAL SOFTWARE

Installation on computers with Windows

Prior to beginning the installation of PowerSoft:

- Uninstall the current version of PowerSoft or any other control software (in situations where the user is changing the battery back-up protecting the computer),
- If the battery back-up will communicate with the PC via a USB cable, this cable should be disconnected from the computer. The software installer will prompt the user to connect the communication cable at the appropriate time.

In order to install PowerSoft on a computer with Windows (the list of operating systems compatible with the application is available at www.ever.eu) just run the software installer and follow the instructions onscreen. During the installation you will be asked to select the model of the battery back-up connected to the computer on which the software is being installed. This setting may also be changed when the application is running.

In the case of a UPS connected to the computer via a USB cable, when the software installation is complete, the PowerSoft Personal installer will ask the user to connect the USB cable to the computer. The system will announce that a new device has been found and will propose to install the drivers. Select the option to install the drivers from a chosen location and on the next screen indicate the installation folder of the PowerSoft (usually *C:\Program Files\PowerSoft*) to be searched. Next, the operating system will locate and install the appropriate driver.

In the case of Windows Vista the operating system will not launch automatic installation of the drivers from the hard drive. After connecting the USB cable to the computer you will need to open the control panel from the Start Menu and select system properties. On the device tree displayed find the USB bus branch (in most cases it will be already expanded) and select the battery back-up. Update the device's driver from its "Properties" window by right-clicking it in the list and following the instructions onscreen. As the driver's location you should indicate the PowerSoft installation folder (usually *C:\Program Files\PowerSoft*).

To uninstall PowerSoft select the "Uninstall PowerSoft" option in Start Menu. You can also uninstall PowerSoft from the "Add and remove programs" menu in the control panel.

Installation on computers with Linux/Unix

The binary version of the application for Linux/Unix systems is provided in the following formats:

CentOS, RedHat, Suse Linux, Fedora Core

For the CentOS, RedHat, Suse Linux, and Fedora Core systems the software is provided in the form of a RPM package. The software can be installed by using any package manager available for the system installed. If you are using the command line the software is installed by entering the following command:

rpm -ivh powersoftpersonal-x.x.x.i386.rpm

Users working with the PowerSoft must have root privileges to install the software and use it. After installation the application may be found in the /usr/local/powersoft directory.

To uninstall the application enter the following command:

rpm -ev powersoftpersonal-x.x.x

Debian

For the Debian systems the software is provided in the form of a DEB package. The software is installed via the following command:

dpkg --install powersoftpersonal-x.x.x.deb

To uninstall the application enter the following command:

dpkg --remove powersoft

FreeBSD

For FreeBSD systems the software is provided in the form of the default package format designed for FreeBSD systems. The software is installed via the following command:

pkg_add powersoftpersonal-x.x.x.tbz

To uninstall the application enter the following command:

pkg_delete powersoft

	WARNING! FreeBSD systems do not support communication with the UPS via the USB cable.

Starting the software

After installation the system service is started automatically, while the control panel application can be found at */usr/local/powersoft.*
Please note that for the Polish diacritics to be correctly displayed the system locale should be Polish.

Software updates

Windows systems

The software installer for Windows systems has a built-in automatic updater. PowerSoft may regularly check for new software versions and notify the user when updates are available. By default the software check for updates after user log-in. This setting may be changed in the "Update configuration" item in the system‘s software menu.

Linux/Unix systems

In the case of Linux/Unix systems PowerSoft may be updated by downloading the new package from www.ever.eu.
In the case of CentOS, RedHat, Suse Linux, and Fedora Core Powersoft may be updated by entering the following command:

```
rpm -Uv powersoftlite-x.x.x
```

In the case of Debian and FreeBSD systems we recommend uninstalling the old version and then installing the new version of the software. Commands which enable these operations are described in the instruction manual available at www.ever.eu.

ADDITIONAL REMARKS

	WARNING! Product for commercial and industrial applications in secondary environment. Applying additional preventive measures or limiters in the installation may be required in order to prevent the emission of disturbances.

	WARNING! No service elements located inside the battery back-up are to be modified by the end user.

- Damaging the warranty seal will void the warranty for the given device.
- Any repairs should be conducted only by a qualified representative of the technical support.
- The battery back-up may not perform as expected if the powered equipment draws high impulse power. In practice this means that even though mean power of the protected equipment does not exceed the range of powers accepted by the battery back-up, the equipment will cause the UPS to shut down. It happens because the protected equipment temporarily draws power that significantly exceeds the nominal power of the battery back-up, which causes a detection of an overload and the resulting shutdown.
- It is recommended that maintenance and inspection of accumulators be conducted by competent personnel familiar with the device and following the necessary precautions.
- Accumulators should be replaced with accumulators of the same type and the same number of cells or assemblies.

	CAUTION! Keep the accumulators away from fire – they may explode.

	CAUTION! Do not open the accumulators and protect them against damage. Spilled electrolyte is harmful to skin and eyes and may also be toxic.

BATTERY BACK-UP AND POWER GENERATORS

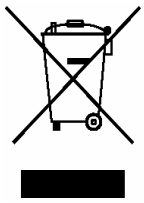
The SUPERLINE-series battery back-ups are ONLINE class devices synchronising with the mains voltage. By design the battery back-up to a certain extent tolerates the changes in mains voltage and frequency in relation to the nominal frequency of 50Hz (see the technical parameters table). When connected to a power generator, the frequency variations change in time and are closely dependent on changes in load levels. If the frequency variations of a power generator's voltage exceed the allowed tolerance limit, the battery back-up will consider such frequency to be incorrect and will switch to an appropriate operation mode in accordance with the functionalities described above.

STORAGE, MAINTENANCE AND TRANSPORT

The battery back-up must be stored and transported in compliance with installation guidelines present in a separate document delivered with the device. If these requirements are not followed, EVER Sp. z o.o. shall not be responsible for any mechanical damages that occur in transport.

DISPOSAL

Appropriate handling of used up electric and electronic equipment helps to avoid consequences resulting from the presence of dangerous materials, as well as inappropriate disposal and processing of such equipment, which may be hazardous to human life and the environment.
Act dated 29 July 2005 on used-up electric and electronic equipment, article 22.1 items 1 and 2.



According to the regulations binding in the European Union, a crossed rubbish bin symbol means that when a product is no longer used it should be disposed of at a special waste pickup site. This concerns the device itself, as well as other accessories marked with this symbol. Do not dispose of those products together with unsorted household waste.

Method of safe removal of the batteries from the appliance:
The batteries should be removed from the appliance by an authorised service outlet or by a duly authorised electrician.

TECHNICAL PARAMETERS

INSTALLATION GUIDELINES

Parameter \ Battery back-up			SUPERLINE model 6k	SUPERLINE model 8k	SUPERLINE model 10k	SUPERLINE model 12k
Apparent / active power			6 kVA 4.8 kW	8 kVA 6.4 kW	10 kVA 8 kW	12 kVA 9.6 kW
Power supply parameters						
Power supply system topology			1P3W			
Nominal voltage			230 V			
Nominal current			23 A	31 A	38 A	46 A
Nominal input frequency			50 Hz			
Minimum cable section			6 mm^2	10 mm^2	10 mm^2	10 mm^2
Basic and BYPASS lines safeguards	Switch fuse		40 A gG	63 A gG	80 A gG	80 A gG
	Switch fuse		40 A gG	63 A gG	80 A gG	80 A gG
Output parameters						
Output system topology			1P3W			
Nominal output voltage			230 V			
Nominal current			21 A	28 A	35 A	42 A
Minimum cable section			6 mm^2	10 mm^2	10 mm^2	10 mm^2
Output line safeguards	Switch disconnector		40 A	63 A	80 A	80 A
Environment parameters						
Amount of heat generated in nominal operating conditions			<1650 BTU	<2200 BTU	<2800 BTU	<3300 BTU
Operating temperature			10 ÷ 40 ℃			
Storage temperature			0 ÷ 40 ℃			
Humidity			< 95 %			
Altitude (above sea level)			< 1000 m			
Mechanical parameters						
Dimensions (w x d x h)			340x740x795mm			
Weight			200 kg			
Free space requirements			front: > 200 mm sides: > 100 mm rear: > 300 mm			

TECHNICAL DATA

PARAMETERS \ MODEL	SUPERLINE model 6k	SUPERLINE model 8k	SUPERLINE model 10k	SUPERLINE model 12k
Output power [1]	6 kVA 4.8 kW	8 kVA 6.4 kW	10 kVA 8 kW	12 kVA 9.6 kW
GENERAL INFORMATION				
Topology	VFI			
Overall efficiency for Pmax (for VFI)	> 93 %			
Overall efficiency for Pmax (for ECO)	> 98 %			
Cooling	Forced, internal fans			
Degree of protection	IP20			
Working environment	Dedicated rooms with low pollution level			
Operating temperature [2]	10 ÷ 40 ℃			
Storage temperature	0 ÷ 40 ℃			
Relative humidity for operation	< 95 %			
Relative humidity for storage	< 95 %			
Altitude (above sea level) [3]	< 1000 m			
RECTIFIER				
Input voltage	~70 ÷ 280 V ± 2 %			
Frequency of input voltage	45 ÷ 55 Hz ± 1 Hz			
Power Factor (PF)	> 0.99			
Total harmonic distortion of input current (THDi)	< 3%			
Safeguards	Overcurrent switches for the basic and BYPASS lines 2 x 63 A (ch.B)			
INVERTER				
Output voltage (effective value)	~230 V ± 2 %			
Shape of output voltage	Sinus			
Frequency of output voltage	Synchronous / 50Hz ± 0.2 Hz			
Static control of voltage	< 1 %			
Total harmonic distortion of output voltage (THDu)	< 1,5 % for Pmax (line) < 5 % for Pmax; CF = 2.2; PF=0.65)			
Peak factor	5:1			
Short-circuit current	> 5 I_N			
Safeguards	Inverter operation – electronic safeguards against shorting and overloads BYPASS line operation – output overcurrent safeguards			
ACCUMULATORS				
Battery back-up's accumulators	**1 x 28 x VRLA 12 V / 7 Ah** *2 x 28 x VRLA 12 V / 7 Ah (option)*			
Support time with internal batteries only (100%/80%/Pmax)*	**> 12/21/35 min** *> 24/32/54 min*	**> 9/12/25 min** *> 17/22/40 min*	**> 7/10/15 min** *> 13/17/30 min*	**> 7/10/12 min** *> 10/14/25 min*
Support time with 1 battery module installed (100 % / 80%/50% Pmax)	> 72/95/180 min	> 50/72/125 min	> 40/51/92 min	> 30/42/74 min
Maximum charging time of internal batteries [4]	< 2h	< 2h	< 2h	< 2h
Maximum charging time of 1 module (after discharging with power of 80% Pmax) [4]	< 3h	< 3h	< 3h	< 3h
MECHANICAL PARAMETERS				
Dimensions (w x d x h)	340x740x795mm			
UPS weight	200 kg			
EQUIPMENT				
Connectors	Screw terminals; max. 16 mm^2 (line)			
Signalling	Acoustic and visual, LCD display			
Communication interface	RS232, USB, SNMP/HTTP network control card - optional			
EPO	Available			
Manual BYPASS switch	Available			

Note: The manufacturer reserves the right to change the abovementioned parameters without notice.

Notes:

1) For normal operation of the battery back-up the load connected to its output should not exceed 80% of value indicated in the table. Reserve power is essential to ensure continuous operation of connected devices in case of momentary rushes in load current.
2) Continued exposure of the battery back-up to the temperature of the surrounding exceeding +25℃ will shorten the life of batteries.
3) If the altitude above sea level increases beyond the provided limit the permitted load power of the batter back-up decreases.
4) Time to charge the batteries to 90% capacity after discharging them with load of 80% Pmax
5) Sample battery module in a typical configuration.

INFORMATION REGARDING REGULATIONS AND WARRANTY

DECLARATION OF CONFORMITY

The battery back-up was manufactured in Poland and its structure conforms to appropriate subject matter standards.

WARRANTY

A separate document attached to the product constitutes the warranty. The document must meet all formal requirements (e.g. date of sale, dealer stamp).

The manufacturer made all efforts to ensure that products offered are free of material and workmanship defects throughout the term specified in the warranty document. The company's liability under the warranty is limited to repairs or replacement of products with such defects. The manufacturer shall make the decision as to how the defect is removed. The warranty does not cover devices with mechanical damages that occurred as a result of negligence of incorrect use or devices subjected to any modifications made by the user.
Apart from the arrangements included in the warranty card EVER Sp. z o.o. does not grant any guarantee or warranty, including warranty of merchantability or fitness for particular purpose.
Apart from the arrangements included in the warranty card EVER Sp. z o.o. shall not be liable for direct, indirect, specific, incidental or consequential losses incurred in the course of using the battery back-up, even in cases when the buyer was warned about such losses being a possibility. The company shall not be liable for any costs, such as loss of profit or revenue, cost of equipment, costs of equipment use, costs of software, data, replacement products, and claims of third parties or other costs.